2/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0139813

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIFIC MONOAMINE OXIDASE ACTIVITY IN RAT LIVER COMPONENTS WAS THE HIGHEST IN NUCLEAR MEMBRANES AND RELATIVELY LOW IN HOMOGENATES AND NUCLEI PROPER; IS ASCITES HEPATOMA IT WAS ALMOST LACKING. IT WAS ALSO SUBSTANTIALLY ABSENT IN HOMOGENATES AND NUCLEI OF OTHER TUMORS SUCH AS MOUSE CARCINOMA AND JENSEN SARCOMA. TWEEN 80 AT CONCN. USED FOR ISOLATION OF NUCLEI DID NOT LOWER THE ACTIVITY OF THIS ENZYME IN HOMOGENATES OR NUCLEI IN HEALTHY RATS.

FACILITY: INST. BIOL. MED. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--AMINE OXIDASE ACTIVITY IN CYTOPLASMIC MEMBRANES AND NUCLEI OF LIVER CELLS -U-

AUTHOR-(04)-AITOVA, E.A., BRONSKAYA, L.M., GORKIN, V.Z., ELPINER, I.YE.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 176-183

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, CYTOPLASM, CELL MEMBRANE, AMINE, OXIDASE, ISONIAZID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0802 STEP NO--UR/0301/70/016/002/0176/0183

CIRC ACCESSION NO--AP0102765

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102765

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CYTOPLASMIC MEMBRANCE AND NUCLEI OF RAT LIVER CELLS AMINE OXIDASE ACTIVITY IS FOUND; TYRAMINE, SEROTONIN, HYSTAMINE AND LYSINE ARE READILY DEAMINATED. IN RAT LIVER NUCLEI DEAMINATION OF ADENOSINE,5,MONOPHOSPHATE (AMP) IS ALSO NOTED. IN "MIXED SUBSTRATES" EXPERIMENTS COMPETITION BETWEEN SEROTONIN AND LYSINE IS OBSERVED; THE PHENOMENON IS NOT, HOWEVER, RECORDED IF ONE OF THESE SUBSTRATES IS SUBSTITUTED FOR AMP. DEAMINATION OF SEROTONIN BY AMINE OXIDASES FROM RAT LOVER NUCLEI IS PARTIALLY INHIBITED BY PARGYLINE (BUT NOT BY ISONIAZID). AMINE OXIDASE ACTIVITY IS PRESENT IN RAT LIVER CYTOPLASMIC MEMBRANES AND CELL NUCLEI DESTRUCTED BY SONICATION (ESPECIALLY IN NITROGEN ATMOSPHERE). SONICATION OF SUSPENSIONS OF PREVIOUSLY LYOPHYLIZED PREPARATIONS OF CYTOPLASMIC MEMBRANCE PRODUCES AMINE OXIDASE ACTIVITY CONTAINING PARTICLES WHICH ARE NOT SEDIMENTED IN ULTRACENTRIFUGE WITHIN 90 MIN AT 105,000 G.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THE EFFECT OF CHLORAMPHENICOL ON THE DISSOCIATION AND REASSOCIATION OF E. COLI RIBOSOMES -U-

AUTHOR--GORKINA, N.B., MAZUROV, V.I.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 163-172

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESCHERICHIA COLI, RIBOSOME, CHLORAMPHENICOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0798 STEP NO--UR/0301/70/016/002/0163/0172

CIRC ACCESSION NO--AP0102761

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102761

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 30S AND 50S RIBOSOME SUBPARTICLES OBTAINED FROM E. COLI ASSOCIATE INTO 70S PARTICLES IN THE SYSTEM CONTAINING 1 TIMES 10 PRIME NEGATIVE2 M MG POSITIVE POSITIVE. HOWEVER, ASSOCIATION OF SUBPARTICLES UNDER THESE CONDITIONS IS INCOMPLETE. CHLORAMPHENICOL DOES NOT AFFECT INTERACTION OF 30S AND 50S SUBPARTICLES. FORMATION OF 70S IN ITS PRESENCE PROCEEDS IN THE SAME MANNER AS IN THE SYSTEM FREE FROM CHLORAMPHENICOL. THE ANTIBIOTIC HAS NO EFFECT AS WELL ON THE PROCESS OF MG POSITIVE POSITIVE DEPENDENT DISSOCIATION OF 70S MONOMERS INTO 30S AND 50S SUBPARTICLES.

UNCLASSIFIED

USSR

UDC 519.1

GOR'KOV, L. I.

"Certain Properties of Fibonacci Numbers"

Uch. zap. Leningr. gos. ped. in-t im. A. I. Gertsena (Scientific Notes of the Leningrad State Pedagogical Institute imeni A. I. Hertzen), Vol 464, 1971, pp 3-15 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V316, by B. Rumov)

Translation: The divisibility of the Fibonacci numbers $u_n : u_1 = u_2 - 1$, $u_{n+2} = u_{n+1} + u_n (n \geq 1)$ is examined. The following theorems are proven: a) if p is a prime ($p \neq 5$) and $p^{m+1} | u_{np^m}$ for some $m = m_0 > 0$, then $p^{m+1} | u_{np^m}$ for any $m \geq 0$. b) If p is a prime ($p \neq 5$) and $p^{m+1} | u_{np^m}$, $p^{m+1} | (u_{np^{m-1}} - 1)$ for some $m = m_0 > 0$, then $p^{m+1} | (u_{np^{m-1}} - 1)$ for any $m \geq 0$. c) If n is the

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GOR'KOV, L. I., Uch. zap. Leningr. gos. ped. in-t im. A. I. Gertsena, Vol 464, 1971, pp 3-15

smallest number for which $p|u_n$ and $p|(u_{n-1} - 1)$, then the smallest number l for which $p^{m+1}|u_l$ and $p^{m+1}|(u_{l-1} - 1)$ is np^m.

In conclusion, for all prime numbers $p \leq 1069$, a table of least values of n such that $p|u_n$ and $p|u_{n-1} - 1$ and of least values of m such that $p|u_m$ is presented.

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1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--SINGULARITIES OF THE RESISTIVE STATE WITH CURRENT IN THIN SUPERCONDUCTING FILMS -U-

AUTHOR--GORKOV, L.P.

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COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 1, P. 52-6, JAN. 1970

DATE PUBLISHED----JAN70

SUBJECT AREAS--MATERIALS, ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--VOLT AMPERE CHARACTERISTIC, THIN FILM SEMICONDUCTOR, SUPERCONDUCTOR, IMPURITY CONDUCTIVITY, STRONG MAGNETIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1753 STEP NO--US/0000/70/011/001/0052/0056

CIRC ACCESSION NO--AP0133658

UNCLASSIFIED

2/2 029 UNCLASSIFIED

CIRC ACCESSION NO--AP0133658 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. P. 32-5 THE AUTHORS DEMONSTRATE QUALITATIVELY, THE ESSENTIALLY NONLINEAR CHARACTER OF THE CURRENT VOLTAGE CHARACTERISTIC OF A SUPERCONDUCTING FILM. TO THIS END, THEY CONFINE THEMSELVES TO THE MODEL OF A FILM WITH PARAMAGNETIC IMPURITIES (OR IN A STRONG MAGNETIC FIELD), FOR WHICH THE ROLE OF THE ANOMALOUS TERMS IS SMALL.

UNCLASSIFIED

Oncology

USSR

UDC 616-006

GOR'KOV, V. A., and YEVSEYENKO, L. S., Institute of Chemical Physics, Academy of Sciences USSR

"Mathematical Aspects of the Kinetics of Distribution, Transformation, and Elimination of Antitumor Agents in an Organism"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1973, pp 545-552

Abstract: Mathematical consideration was given to the distribution, metabolism, and elimination from the organism of antitumor agents and other drugs. The mathematical treatment proceeds on the assumption that the organism consists of a definite number of compartments which are homogenous and isotropic with respect to the agent, and takes into consideration the transfer of the agent across cell membranes, binding to cellular and tissue components, and metabolic transformations as well as elimination. A set of first-order differential equations is used to describe changes in the concentration of the agent and its metabolic products, and the solution represents a sum of the exponents; the coefficients and exponents are known functions of the rate constants of the individual processes and initial concentrations of the agents. This approach is most applicable to a system of up to three compartments, and has

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201010008-7"

USSR

GOR'KOV, V. A. and YEVSEYENKO, L. S., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1973, pp 545-552

been applied to some clinical and experimental cases. Such an approach may lead to the determination of the optimum doses and rates of administration of agents useful in the treatment of malignancies and other conditions.

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USSR

UDC 517.946

GOR'KOV, YU. P., Institute of Mathematics and Mechanics, Ural Science Center, Academy of Sciences USSR

"On the Behavior of Solutions of a Quasilinear Parabolic Equation of Divergent Form for $t \to \infty$"

Minsk, Differentsial'nyye Uravneniya, Vol 8, No 8, Aug 72, pp 1440-1446

Abstract: The article considers the behavior of solutions of the Cauchy problem for the quasilinear parabolic equation

$$\frac{\partial u}{\partial t} = \frac{\partial}{\partial x} f(u, u_x),$$

for $t \to \infty$, as well as the behavior of a solution of the above equation which satisfies the conditions

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GOR'KOV, YU. P., Differentsial'nyye Uravneniya, Vol 8, No 8, Aug 72, pp 1440-1446

$$u|_{t=0} = u_0(x), \; u|_{x=0} = \varphi(t) \; (t \geqslant 0, \; x \geqslant 0),$$

where $u_0(x)$, $\varphi(t)$ are certain sufficiently smooth functions, with $\varphi(t)$ being a periodic function with the period T and

$$u_0(x) \underset{x \to +\infty}{\to} u_+, \quad u_0'(x) \underset{x \to +\infty}{\to} 0.$$

The Cauchy problem for the above equation is considered with the initial condition

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GOR'KOV, YU. P., Differentsial'nyye Uravneniya, Vol.8, No 8, Aug 72, pp 1440-1446

$$u_{t=0} = u_1(x),$$

where $u_1(x)$ is a smooth function, and such that

$$u_1(x) \underset{x\to+\infty}{\to} u_+, \quad u_1(x) \underset{x\to-\infty}{\to} u_-, \quad u_1'(x) \underset{|x|\to\infty}{\to} 0.$$

Let the following inequalities be satisfied:

$$\frac{\partial}{\partial p} f(u, p) \geq \alpha_0 > 0, \quad (7) \qquad \frac{\partial^2}{\partial u^2} f(u, 0) \leq \mu_0 < 0$$

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GOR'KOV, YU. P., Differentsial'nyye Uravneniya, Vol 8, No 8, Aug 72, pp 1440-1446

(α_0, μ_0 are certain constants, $-\infty < u, p < +\infty$). It is assumed that classic solutions of the problems considered exist and derivatives of them satisfy the evaluations:

a) $|u_x| \leqslant$ [illegible] for $t \geqslant 0$, $-\infty < x < +\infty$ for problem (2), (5);

b) $|u_x| \leqslant M_1$ for $t \geqslant 0$, $x \geqslant 0$ and $|u|_{1+\gamma} \leqslant M_2$ for $t \geqslant \delta$, $x \geqslant \delta$ for problem (2), (3) ($0 < \gamma < 1$). Here δ is an arbitrary positive number and M, M_1, M_2 certain constants depending on δ. Sufficient conditions for the functions $u_0(x)$, $u_1(x)$, $\varphi(t)$, $f(u, p)$, and their derivatives, whereby solutions of the problems exist and evaluations a) and b) are valid, can easily be obtained from S. N. KRUZHKOV's results.

The author thanks A. M. IL'IN for discussing the work.

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USSR

UDC 547.241

MUKHACHEVA, O. A., GOR'KOVA, S. A., NIKOLAYEVA, V. G., RAZUMOV, A. I., Kazan' Chemical-Technological Institute imeni S. M. Kirov, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Studies in the Series of Phosphinous and Phosphinic Acids. LXII. Phosphorylated Hydroxamic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 2004-2009

Abstract: The following method was developed for synthesis of phosphorylated hydroxamic acids. Hydroxylamine hydrochloride was suspended in absolute methanol, and potassium methoxide was added with stirring. After removing the precipitated KCl, a methanol solution of ethyl ester of β-diethylphosphinylpropionic acid was added, followed by more potassium methoxide to keep the pH at 9-10. The reaction was carried out in dry nitrogen atmosphere. After 10 hrs some crystalline potassium salt of the β-diethylphosphinyl-propionhydroxamic acid was obtained, the remaining product staying in solution. Next, the ion exchange resin KB-4 was added to the above mixture, which was allowed to stand for 6-7 hrs until the pH

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MUKHACHEVA, O. A., et al, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 2004-2009

became <7. The resin was filtered off, most of the solvent evaporated, and the residue poured into ether, from which crystalline β-diethylphosphinylpropionohydroamic acid was obtained, m.p. 106-107°. Other analogues were obtained in a similar fashion. Their IR spectra showed bands at 1680-1665 and 1650-1640 cm^{-1} (C:O), 1565-1540 cm^{-1} (NH), 1180-1140 cm^{-1} (P:O), and at 3170-3140 cm^{-1} (NH and OH). Introduction of the phosphoryl group did not change basic properties of hydroxamic acids. Biologically, they appeared as weak antidotes against phosphorus organic toxins. The authors thank L. A. CHEMODANOVA for taking the IR specta.

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USSR UDC 019.941(05)

GOR'KOVA, V.I., MELLION, S.P., ZAYTSEVA, M.A., ARAKELOVA, L.V., KASPAROVA, V.G., GODUNOVA, L.I., and KASPAROVA, S.G.

"A System for Analyzing a Documental Information Flow Consisting of Scientific Journals"

Moscow, Nauchno-Tekhnicheskaya Informatsiya, Seriya 1, Organizatsiya i Metodika Informatsionnoy Raboty, No. 4, 1971, pp 5-9

Abstract: Due partly to great irregularities in the reception of source documents by VINITI [Vsesoyuznyy Institut Nauchnoy i Tekhnicheskoy Informatsii; All-Union Institute of Scientific and Technical Information], there is a delay between the appearance of an original scientific work and VINITI's publication of an abstract of it in the appropriate Referativnyy Zhurnal (an average of 2.0-2.4 months for abstracting and editing and 1.1 month for processing are required). A study revealed that this delay could be reduced if specialized scientific journals were received directly by the editor of the appropriate abstract journal, without the usual preliminary sorting and processing. In order to carry out this study, a system for analyzing primary sources of

USSR UDC 019.941(05)

GOR'KOVA. V.I., MELLION, S.P., et al., Moscow, Nauchno-Tekhnicheskaya Informatsiya, Seriya 1, Organizatsiya i Metodika Informatsionnoy Raboty, No. 4, 1971, pp 5-9

information -- periodic and continuing publications -- was developed and introduced. It enabled the researchers to rank the totality of source journals in descending order of frequency of inclusion of articles from them in the abstract journal for a specific field. From this ranking, a list of the most frequently used journals was obtained for the given abstract journal.

The system for analyzing primary sources, which utilized punchcard processing equipment, the Gamma-10 machine, and a Minsk-22 computer, proved to have great potentialities for the improvement of VINITI's system of information servicing and for the development of the theoretical foundations of systems and structural analysis of information flows.

Although this research was concerned with documental information flows consisting of scientific journals, analogous investigations could be carried out for patent literature and literature of other types.

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USSR UDC: 621.791.793

KROSHKIN, V. A., TSAREVSKIY, V. V., KABANOV, N. M., MAKSHANOV, V. S., FEDOSEYEV, B. A., GEYNISH, Z. V., GORKUNENKO, G. N., and GUBANOV, A. S., All-Union Scientific Research, Planning Technological Institute of Chemical Petroleum Equipment

"Electro-Slag Welding With Concomitant Normalization by the Induction Method"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 48-51

Abstract: The authors study methods for increasing the resistance to brittle fracture of joints made from low-alloy grades of steel and which were electro-slag welded. The results show that the coincidence of the heat cycles ensures the required impact strength for all joint zones up to 80 mm thick down to -70°C during the pilot introduction of the new technology for the electro-slag welding of the 09G2S grade steel. The developed industrial frequency, induction unit makes it possible to coincide the heat cycles of electro-slag welding with the concomitant normalization of the longitudinal and annular seams on large and small equipment made from cold-resistant and heat-resistant, low-alloy grades of steel. Further study is required to select the optimal heat cycles for electro-slag welding and normalization of joints as a function of thickness and steel grade.

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Plant Pathology

USSR UDC 633.11:632.938.2

GORLACH, A. A., Belotserkovskaya Experimental, Plant-Breeding Station

"Reasons for the Decrease in the Resistance of Winter Wheat Varieties to Brown Rust"

Moscow, Sel'skokhozyaystvennaya Biologiya, No 1, 1973, pp 62-65

Abstract: Study of the records on such Ukrainian winter wheat varieties as Lesostepka 74, Lesostepka 75, Eritrospermum, Koveyl, and Belotserkovskaya 193 revealed a direct correlation between the weather in a given year and the subsequent susceptibility of the wheats to brown rust. The plants were particularly vulernable and epiphytotics most likely when the fall was prolonged and wet and the following growing season was marked by sharp alternation of rain and drought. In the case of Lesostepka 74 and Lesostepka 75, low resistance to lodging and late ripening were other factors. Variability of the racial composition of the rust population is cited as still another possible factor in lowering plant resistance.

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USSR

UDC 621.372.413

GORLACH, A. A., TRET'YAKOV, O. A., and CHUMACHENKO, V. S.

"The Natural Frequencies of a Cylindrical Resonator With a Dielectric and With a Periodic Structure"

V sb. Radioelektron. letatel'n. apparatov (Aviation Radioelectronics -- collection of works), Vyp.4, Khar'kov, Khar'kov. aviats. in-t, 1972, pp 125-127 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B121)

Translation: Characteristics are obtained of an equation for the natural frequencies of a cylindrical resonator on whose axis is located a section of cylindrical periodic structure of the reflection, diffraction grating type with a dielectric. A particular case of axially-symmetric E-oscillation is studied. Original article: two bibliographic entries. V.S.

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USSR

UDC 624.07:534.1

GORLACH, B. A., TSVETKOV, Yu. D.

"Determining the Work in the Crumpling of a Spherical Shell"

V sb. Raschet prostranstv. sistem v stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 72-76 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V304)

Translation: The problem of determining the work in the crumpling of a hemisphere is solved experimentally and theoretically. A functional relationship is established between the parameters characterizing the crumpling on the basis of a series of experiments with shells having varying geometry and made of different materials. The application of the similarity and dimensionality theories under the appropriate selection of these parameters made it possible to lower the number of parameters involved in the construction of the functional relationship from seven to five. The dimensionless compression force was selected as a function in the functional relationship. The work of the external forces was determined as the integral of the force

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GORLACH, B. A., TSVETKOV, Yu. D., Raschet prostranstv. sistem v stroit. mekh., Saratov, Saratov University, 1972, pp 72-76

along the displacement of the shell from zero to the maximum bend. The theoretical method for determining the work was based on the inverse method of solving problems in elasticity theory. Two functions for the components of the displacement vector u_1 and u_2 were selected in such a way that they did not contradict the experimental data. The components of the deformation tensor were expressed in terms of the components of the displacement vector. By assuming the components of the stress vector linearly dependent on the deformation tensor component (which is supported by experiment), the authors determined the work of stresses in the shell in the corresponding deformations. A comparative analysis of the results obtained by the two methods showed their good agreement. V. B. Silkin.

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USSR

GORLACH, B. A.

"Axisymmetrical Bending of Elastic Spherical Envelope with Finite Bends"

Tr. Kuybyshev. Aviats. In-t. [Works of Kuybyshev Aviation Institute], No 48, 1971, pp 93-104, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V143 by V. I. Mamay).

Translation: An axisymmetrical bending of elastic, non-smooth spherical envelopes loaded with even internal pressure is studied. The equations from the theory of finite displacements of non-smooth envelopes are written for deformations and integrated numerically by the method of complex iteration. The calculations were performed on a Ural-2 computer. The solution of the linear problem was taken as the initial approximation. It is noted that the convergence of the process becomes worse with increasing load, and the boundaries of the load for which the process begins to diverge are indicated. Graphs are presented of the dependence of the stressed and deformed state of the envelope on the load and the geometric parameters of the envelope.

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USSR

UDC: 621.378.325

GORLANOV, A. V., KALININA, A. A., LYUBIMOV, V. V., ORLOVA, I. B., PETROV, V. P.

"Investigation of the Possibilities for Making Telescopic Laser Amplifiers With High Amplification Factors"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 17, No 4, Oct 72, pp 617-622

Abstract: Based on the theory of unstable resonant cavities, an investigation is made into the feasibility of attaining high amplification factors ($\sim 10^5$) in telescopic laser amplifiers. It is shown that when a single GOS-1001 light source is used, a three-pass amplifier is optimum, while the optimum number of passes is two for an amplifier using two such light sources. An amplification factor of approximately 160 000-200 000 is achieved (for a weak signal).

USSR UDC 621.378.325

VANYUKOV, M. P., GORLANOV, A. V., LYUBIMOV, V. V., ORLOVA, I. B., PETROV, V. F.

"A Neodymium Glass Multichannel Monopulse Laser"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 4, "Sovetskoye Radio", 1971, pp 117-120

Abstract: The authors consider certain problems in the design of multichannel monopulse laser systems. An evaluation is made, and experimental data are presented on the influence which scattering of light in the gate has on the angular divergence of a beam from a laser with an unstable cavity. An experimental study is made of the limiting possibilities of a single-channel amplification system based on neodymium glass rods 45 mm in diameter and 600 mm long. A six-channel monopulse laser system is described with a total emission energy of 1 000 J and a pulse power of 15 GW. Four figures, bibliography of nine titles.

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USSR

UDC 577.15:632.4:582.288

SHEMOTINA, G. YE., KOKURINA, N. A., and GORLENKO, M. V.

"DNA Nucleotide Composition of the Agent of Verticillium Wilt"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 3, 1971, pp 311-313

Abstract: One of the key problems in this field is the species composition of wilt fungus. Some believe in a variety of species, and some believe that all agents belong to the species first described in 1879. The described research was aimed at clarifying this point by analyzing wilt agents on the basis of their DNA nucleotide composition. The evidence agreed with that in the literature. According to the taxonomic index, no difference was perceived between V. albo-atrum and V. dahliae, leading the authors to ascribe both to the V. albo-atrum category.

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USSR

UDC 622.4:631.531.1

GORLENKO, M. V., Moscow State University imeni M. V. Lomonosov, Soil Biology Faculty, Chair of Lower Plants

"Seeds as a Source of Transmission of Infectious Diseases of Plants"

Leningrad, Mikologiya i Fitopatologiya, Vol 4, No 2, 1970, pp 165-169

Abstract: Cases of plant diseases being carried from one region to a previously sterile one are known. The need for disinfection of seeds by dipping and other methods is stressed, but this is not always effective. The pathogen may merely adhere to the surface of the seeds or it may be imbedded in the outer membrane or the mycelium might have penetrated into the embryo, which frequently occurs during infection of wheat by smut. The pathogen must be studied, its mode of development as related to soil conditions, the seasons of the year, humidity, temperature, etc. Seed should be planted during the periods least favorable for the growth of the pathogen, and combined chemical and agrotechnical methods used in fighting plant disease.

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USSR

UDC: 51

GORLIN, A. M., LOBOVSKIY, A. Ye.

"Redundancy of Equipment for Automated Control Systems"

Mekhaniz. i avtomatiz. upr. Nauch.-proizv. sb. (Mechanization and Automation of Control. Scientific-Production Collection), 1971, No 6, pp 16-18 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V459)

Translation: A method is considered for determining the economically advisable volume of reserve equipment for an automated control system, as well as the spatial arrangement of the points of location themselves. The proposed method and a program developed for the "Minsk-22" computer can be used to solve practical problems involved in the optimum planning of reserve equipment in industrial enterprises. Authors' abstract.

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USSR UDC 65.012.122:621.3.019

GORLIN, A. M., Candidate of Technical Sciences

"Using the Method of Statistical Modeling for Computing the Reliability of Control System Equipment"

Kiev, Mekhanizatsiya i Avtomatizatsiya Upravleniya, No 4, 1972, pp 8-10

Abstract: Methods for computing reliability parameters of systems and their effective operation are required for the introduction of automated control systems into industrial plants. This paper offers and discusses methods for investigating the technical reliability of an assembly line which can be extended to the more general case of hierarchical automation of control systems. The basic indices characterizing the reliability of the line and the efficiency of its operation can be used to determine other indices characterizing the operation of individual lines. To show how this is done, the author formulates an algorithm for the recurrent construction of moments $\{t_k\}$, $k = 1,2,3,...$, in which perturbations occur in the system, and for the determination of the sources of these perturbations and the nature of the changes to which the states of the lines of the system, other than the sources, are subject. On the basis of this algorithm, a program has been made

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USSR

GORLIN, A. M., Mekhanizatsiya i Avtomatizatsiya Upravleniya, No 4,, 1972, pp 8-10

for the "Minsk-22" computer for the purpose of calculating the reliability parameters and the operating efficiency of control equipment.

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USSR UDC 621.315.592

GORLIN, G. E., PARITSKIY, L. G., RYVKIN, S. M., BAGDANAVICHUS, A. A.

"Possibility of Using the Electrophotographic Semiconductor-Dielectric System in Long Wave Semiconductor Photography"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 427-428

Abstract: Photography in the long wave range is possible on the basis of the principle of controllable sensitivity [L. G. Paritskiy, et al., Zh. nauch. i prikl. fotog. i kinematogr., No 15, 185, 1970; L. G. Paritskiy, et al., FTP, No 4, 764, 1970]. The implementation of this principle requires a device in which the photographic sensitivity is switched on electrically or otherwise only at the time of exposure to avoid fogging of the photographic film by the equilibrium background radiation. These requirements are satisfied by the electrographic semiconductor-dielectric system [S. G. Grenishin, Elektrofotograficheskiy protsess, Nauka Press, Moscow, 1970; R. Shaffert, Elektrofotografiya, Mir Press, Moscow, 1968] investigated in this article. A layer of semiinsulating GaAs alloyed with zinc 1,000 microns thick with a specific resistance of 10^8 ohm-cms was used as the photosemiconductor. The dielectric layer was a polyethylene film 10 microns thick with a conducting coating. The light source had a light flux power to $3 \cdot 10^{-2}$ watts/cm^2. It was assumed that the charge

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USSR

GORLIN, G. B., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 427-428

transfer could occur through a gap filled with liquid nitrogen. The semiconducting layer and the dielectric layer were clamped between conducting electrodes and the device was charged with liquid nitrogen to complete cooling. Then simultaneously with illumination, a voltage pulse lasting 80 milliseconds was applied to the conducting electrodes. Even with a voltage pulse of 8 kilovolts, the charge transfer did not take place until experiments were performed in which the system cooled by submerging completely in liquid nitrogen was partially extracted to the level at which the semiconductor contact with the dielectric was above the nitrogen surface. Charge transfer took place after removal of the nitrogen in the gap for an 80 millisecond, 3 kilovolt pulse.

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USSR

UDC: 533.6.07

GORLIN, S. M., MIRONOVA, N. A., KHUDYAKOV, G. Ye.

"Wind Tunnels"

Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works. Institute of Mechanics of Moscow University), 1971, No 14, pp 4-27 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B541)

Translation: The authors describe the construction and aerodynamic characteristics of wind tunnels of the Institute of Mechanics, Moscow State University: tunnel A-6 (a closed single-channel tube with open working section of elliptical cross section measuring 2.34×4 m, flowrate $V \leqslant 50$ m·s^{-1}, nonuniformity of velocity field of less than ±0.5%, downwash in the range of ±15′ ($\pm 4.36 \cdot 10^{-3}$ rad), gradient of static pressure along the axis of the tube $d\bar{p}/dx = 0.002$ m^{-1}, turbulence intensity $\varepsilon_0 \leqslant 0.2\%$, drive power $N = 2000$ kW); tube A-10a (a direct-action tunnel capable of operation with a closed octangular working section 800 mm high, or with an open section and an Eifel chamber, $V \leqslant 55$-10 m·s^{-1}, $\varepsilon_0 \approx 0.4\%$, $N = 240$ kW); tunnel A-1 (closed type with a closed working section 250 mm in diameter, $V \leqslant 60$ m·s^{-1}, $\varepsilon = 0.4\%$, $N = 21$ kW); tunnel A-4 (direct-action with a closed 300×300 mm working section, $V = 25$

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USSR

GORLIN, S. M. et al., Nauch. tr. In-t mekh. Mosk. un-ta, 1971, No 14, pp 4-27

$m \cdot s^{-1}$, N = 6 kW); tunnel A-11 (a near-sonic tube with ejector drive and supply from a gas tank, M = 0.4-2.5, $\varepsilon_0 \approx 0.9\%$). Information is also given on the tunnel instrumentation. B. I. Bakum.

USSR

UDC: 532.526

GORLIN, S. M., ZRAZHEVSKIY, I. M., Moscow

"Effect of External Flow Turbulence on Flow in a Boundary Layer"

Moscow, Izv. AN SSSR: Mekhanika Zhidkosti i Gaza, No 4, Jul/Aug 72, pp 52-57

Abstract: Experimental data are analyzed to derive a universal relation for the turbulence in a boundary layer on a plate as a function of the distance to the plate. The relation is called the law of pulsation velocity component defect by analogy with the law of average velocity defect. Special experiments were conducted in wind tunnel A-6 at the Institute of Mechanics of Moscow State University to obtain data on the distribution of velocity and energy of turbulence in a boundary layer for various degrees of turbulence of the external flow. The parameters of the wind tunnel are given.

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UDC 533.6.013.42

GORLIN, S. M., KHUDYAKOV, G. YE.

"Lift Reversal Effect for Cylindrical Bodies of Circular Cross Section"

Nauch. tr. In-t mekh. Mosk. un-ta(Scientific Works. Institute of Mechanics of Moscow University), 1971, No. 12, pp 34-46 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V509)

Translation: The physical reasons for a considerable change in the aerodynamic characteristics of unstreamlined bodies with a change in Reynolds number are discussed. These characteristics have been studied especially little in the range of large values of R. Computational methods for determining them even for the plane case of steady-state flow of a viscous liquid are still not developed to the necessary degree. On the basis of experimental data attention is devoted to the considerable difference in the behavior of the aerodynamic coefficients of a nonstreamlined body under different orientations to the flow from the Reynolds number. Measurements were made for models with a semicircular cross section over a wide range of angles of orientation to the flow for R = $= (1.5\text{-}8)\cdot 10^5$. Zero angle of attack corresponds to the incident velocity vector coinciding with the plane side of the model. For values of R = $2.2\cdot 10^5$ in a narrow zone of angles of attack ($\pm 15^\circ$), there occurs a zone of negative

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USSR

GORLIN, S. M., KHUDYAKOV, G. YE., Nauch. tr. In-t mekh. Mosk. un-ta, 1971, No. 12, pp 34-46

values of the lift. Graphs of the change in lift as a function of the angle of orientation have minima and the signs do not change for the upper boundary of the region of values of R studied. On the other hand, at subcritical and high values of R the nature of the change in the drag coefficient as a function of angles of orientation are greatly different. The reason for these effects is the change in the nature of the flow of the convex portion of the model in the zone of small angles of orientation under a change in R. The nature of the flow over the plane edge of the model at small angles is a separation. With the growth of the absolute angles in values of R the boundary of the separation zone is displaced toward a rear angular point. It is noted that the range of values of R in which lift reversal occurs for these models is also characterized by a crisis flow in the case of a circular cylinder. Graphs are given showing the change in the aerodynamic quality and the polar of the model for various R. These characteristics of the effect of Reynolds number appear to a greater degree with an increase in the length of the models. 5 ref. K. G. Kravtsov.

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USSR UDC: 533.6.07

GORLIN, S. M.

"Effect of Initial Turbulence on the Flow Around Bodies and Their Aerodynamic Characteristics"

Nauchn. tr. In-t mekh. Mosk. un-ta (Scientific Transactions of the Moscow University Institute of Mechanics) 1970, No. 1, pp 34-45 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B509)

Translation: Results are presented of the experimental research on the effect of initial turbulence on the aerodynamics of bodies of various shapes, and methods of measurements and of changes in broad limits of the flow turbulence in the active portions of aerodynamic tubes are described. The research was conducted in several subsonic aerodynamic tubes of various types. To reduce the turbulence, combinations of honeycombs were used with de-turbulence grids placed before and after them; as a result, a tur-

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GORLIN, S.M., Nauchn. tr. In-t mekh. Mosk. un-ta 1970, No 1, pp 34-45 (from Rzh-Mekhanika, No 2, Feb 71, Abstract No 2B509)

bulence level of 0.1% was achieved. The turbulence increased as a consequence of the placement of grids with large cells and small corners on the slot of the nozzle; thus flows with a turbulence level of up to 10% and more were also obtained by a small axial gradient of turbulence intensity. From the results of thermo-anemometric measurements, a more precise formula was obtained for determining the turbulence intensity from the R_{cr} number for a sphere. The research showed that the initial turbulence has a large effect on the aerodynamic characteristics of all the tested bodies (wing models, spheres, cubes, cylinders, electric-train models, city buildings, hills, etc.) B. I. Bakum

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USSR

UDC: 533.6.07

GORLIN, S. M., KHUDYAKOV, G. Ye., ZIBOROVA, S. P., TIMOSHUK, L. T.

"Effect Which Initial Flow Turbulence Has on Flow Around Solids and Their Characteristics"

V sb. Nauchn. konferentsiya. In-t mikhan. MGU. Tezisy dokl. (Scientific Conference. Institute of Mechanics of Moscow State University. Summaries of the Reports--collection of works), Moscow, 1970, pp 22-23 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B504)

Translation: Data are given from studies of the effect which initial flow turbulence ε_0 has on streamline flow and on the aerodynamic characteristics of various solids. The research was done in a subsonic wind tunnel with $\varepsilon_0 = 0.2\text{-}10\%$. It is shown that: 1) the lift coefficient of the wing and the model is critically dependent on the parameter ε_0; 2) the initial flow turbulence has a considerable effect on the critical Reynolds number for rounded, poorly streamlined bodies; 3) for poorly streamlined solids with sharp edges, as ε_0 increases as a consequence of the change in nature of the burbling zone, there is first an increase, and then stabilization

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USSR

GORLIN, S. M., et al, V sb. Nauchn. konferentsiya. In-t mikhan. MGU. Tezisy dokl., Moscow, 1970, pp 22-23 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B504)

or a reduction in the drag c_x for the solid which exceed in magnitude the changes in c_x due to the Reynolds number. Mention is made of the leveling effect which a deflector has on the aerodynamic drag of poorly streamlined solids for various values of ε_0. The authors discuss the effect of ε_0 on parameters of oncoming flow close to local terrain, city skylines, etc. B. I. Bakum.

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USSR

UDC 577.4

SERIKOV, YU. A., GORLITSYN, B. N.

"Algorithm for Calculating Minimal Solutions in the Logical Equations of a Special Type. Logical Solution of the Covering Problem"

V sb. Ekon.-mat. metody i programmir. plan.-ekon. zadach (Mathematical Economic Methods and Programming Economic Planning Problems--collection of works), Moscow, 1972, pp 57-62 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V270)

No abstract

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USSR UDC 53.07/.08+53.001.5

SHERSTKOV, Yu. A., RYBAKOV, V. A., GORLOV, A. D., YESYUNIN, V. N.

"An Electromagnet Current Stabilizer"

Uch. zap. Ural'sk. in-ta (Scientific Notes of the Ural Institute), 1971, No 118, pp 113-117 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A321)

Translation: The electron paramagnetic spectrometers currently used for studying the structure of the spectra of free radicals and the complex spectra of elements of the transition groups utilize electromagnets with electronic current stabilization of at least 10^{-5}-10^{-6}. The proposed supply circuit is designed for field stabilization in a radiospectrometer of the single-klystron type. The current stabilizer is designed for feeding magnets with a power of up to 3.5 kVA and stabilizes the magnetic field to 10^{-6}. The magnet provides a field with a strength of up to 10 000 oersteds in a gap of 60 mm with a pole piece diameter of 250 mm and a winding resistance of 800 ohms. A diagram of the device is presented and its operation is described. A nuclear magnetic resonance pickup (IMI-2) is used for evaluating the stability of the magnetic field. Operation of the device over a three-year period has shown that it satisfies all requirements for the supply source of magnets in NMR spectrometers; it is convenient and reliable in use. B. N. Kraynov.

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1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ANISOTROPY OF THE ULTRAHIGH FREQUENCY OF FARADAY ROTATION IN N GERMANIUM IN STRONG ELECTRIC FIELDS -U-

AUTHOR-(04)-BARANOVSKIY, S.N., BEREZIKOV, O.D., GORLOV, B.B., POGORELSKIY, A.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 589-91

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ANISOTROPY, ULTRAHIGH FREQUENCY, ROTATION, GERMANIUM, ELECTRIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1720 STEP NO--UR/0449/70/004/003/0589/0591

CIFC ACCESSION NO--AP0120432

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120432

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANISOTROPY OF THE ULTRAHIGH FREQUENCY (UHF) OF FARADAY ROTATION IF STRONG ELEC. FIELDS WAS STUDIED ON N-GE TO DET. THE ANISTROPY OF THE HALL MOBILITY. FARADAY ROTATION EXPTS. WERE PERFORMED AT ROOM TEMP. AND.A FREQUENCY OF 9.4 GHZ. DISK SHAPED, ROTATABLE SAMPLES OF N-GE (P SIMILAR TO 10 OHM-CM) WERE PLACED IN A ROUND WAVE GUIDE, THE DIRECTION OF THE UHF WAVE BEING PARALLEL TO THE (110) DIRECTION OF THE DISK. MAGNETIC FIELD IN SAMPLES WAS INDUCED BY A SOLENOID. THE DEPENDENCE OF FARADAY ROTATION ANGLE (THETA) ON THE STRENGTH OF ELEC. FIELD OF THE INCIDENT WAVE WAS TAKEN FOR FIELD DIRECTIONS PARALLEL TO (111) AND (100). FROM THESE CURVES, ANISOTROPY AND SATN. OF FARADAY ROTATION IN STRONG FIELDS WAS DETD. THE ANGULAR DEPENDENCE OF FARADAY ROTATION ON DIRECTION OF A MEAN ELEC. FIELD IN THE SAMPLE (E EQUALS 1300 V-CM) WAS ALSO EXAMD. A RELATION BETWEEN FARADAY ROTATION AND HALL MOBILITY ANISOTROPY WAS FOUND. FACILITY: NOVOSIBIRSK. ELEKTROTEKH. INST., NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ANOMALIES IN THE SMALL ANGLE ELASTIC SCATTERING OF NEUTRONS -U-

AUTHOR-(03)-GORLOV, G.V., LEBEDEVA, N.S., MOROZOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 138-46

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR MODEL, NEUTRON SCATTERING, SMALL ANGLE SCATTERING, SCATTERING CROSS SECTION, CALCULATION, ERROR ANALYSIS, ELASTIC SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0237 STEP NO--UR/0048/70/034/001/0138/0146

CIRC ACCESSION NO--AP0105313

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201010008-7"

2/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105313

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALL INVESTIGATORS MAKE CONCLUSIONS ON THE PRESENCE OR ABSENCE OF ANOMALIES IN THE SMALL ANGLE SCATTERING OF N ON THE BASIS OF THE COMPARISON OF EXPTL. DATA WITH THE PREDICTIONS OF THEORY. UNFORTUNATELY, THE SIGNIFICANCE OF THEORETICAL PREDICTION IS NOT CUSTOMARILY DEALT WITH. THE FORM OF THE CROSS SECTION OF N ON THE NUCLEI OF THE MEAN AT. WT, IS SATISFACTORILY DESCRIBED BY ALL MODELS USED, BUT THE HEAVY NUCLEI EXHIBIT AN UNSTABLE RESULT. THE USE OF VARIOUS MODELS FOR THE INTERPRETATION OF DATA OBTAINED IN ONE AND THE SAME EXPT. OFTEN LEADS TO CONCLUSIONS BY THE SIGN OF THE EFFECT. THE ASSUMPTIONS MADE IN MANY WORKS ON THE EXISTENCE OF THE ANOMALOUS SMALL ANGLE SCATTERING OF N INCREASING WITH THE INCREASE OF ENERGY OF N ARE NOT JUSTIFIABLE.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201010008-7"

USSR

UDC 536.243

ALAD'YEV, I.T., GORLOV, I.G, and FEDYNSKIY, O.S.

"Effect of Nonuniformity of Heat Inflow Along Channel Length on Critical Heat Flux With Potassium Boiling In Tubes"

Moscow, Teplo-Massopernos v Odno-i Dvukhfaznykh Sredakh, 1971, pp 5-9

Abstract: An experimental investigation of critical heat flux with increasing and decreasing heat inflow along the length of the pipe was conducted.

The mass velocity was from 20 to 250 kg/m^2sec, pressure nearly atmospheric, temperature close to the saturation one.

Potassium was flowing through round, vertical, molybdenum tubes. The heat inflow was produced by the electric current passing through the tube. The distribution of the heat inflow was controlled by varying the thickness of the tube wall.

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USSR

ALAD'YEV, I. T., et al., Teplo-Massopernos v Odno-i Dvukhfaznykh Sredakh, 1971, pp 5-9

The following conclusions were made:

1. The critical heat flux increases with the mass velocity
2. The critical heat flux decreases with the increase of the tube length
3. The critical heat flux usually occurs at the outlet of the tube.

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USSR

UDC 536.243

GORLOV, I.G. and RZAYEV, A.I.

"Hydrodynamic and Heat Transfer Characteristics of Flow of Liquids Through Tube Coils"

Moscow, Teplo-Massopernos v Odno-i Dvukhfaznykh Sredakh, 1971, pp. 71-77

Abstract: The review of literature on the hydrodynamics and heat transfer with flow of liquid-vapor mixtures through the steam generator tube coils is made.

It is pointed out that the liquid phase is concentrated on the inner side of the bend rather than on the outer one where it would be moved by centrifugal action. Flow visualization experiments indicated that the liquid is moved to the inner side of the bend by the action of secondary flows which are directed away from the axis of the bend at the center of the tube section, toward the axis of the bend near the walls (see fig. 1).

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201010008-7"

USSR

GORLOV, I. G. and RZAYEV, A. I., Teplo-Massopernos v Odno-i Dvukhfaznykh Sredakh, 1971, pp 71-77

Pressure losses for two phase flow through tube coils are given (fig. 2 and 3).

Graphs of heat transfer for two regimes are shown. One regime refers to steam generation from a liquid film; the other one to steam bubbling through the liquid.

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USSR UDC 536.248

GORLOV, I. G.

"An Experimental Investigation of the Critical Thermal Fluxes of Potassium Moving in a Pipe With Nonuniform Axial Heat Supply"

Moscow, Dvukhfaznyye Potoki i Voprosy Teploobmena -- Sbornik (Two-Phase Fluxes and Questions of Heat Exchange -- Collection of Works), "Nauka," 1970, pp 45-49 (from Referativnyy Zhurnal, Teploenergetika, No 1, 1971, Abstract No 1G129)

Translation: The experiments were conducted at a pressure close to atmospheric, on an installation which constitutes a closed circulatory circuit. Tubes of molybdenum with an internal diameter of 6 and 4 mm, l/d = 33 and 50, were used as the working sectors. The temperature of the liquid potassium at the input was maintained close to the saturation temperature, the mass vapor contents at the point of crisis comprised 0.5-1.0. It was established by the experiments that with a heat supply that is nonuniform with respect to the pipe length, the critical thermal fluxes are governed by the same laws as in the case of uniform distribution of the thermal fluxes. The local values of the critical thermal fluxes in the case of decreasing heat supply are lower than in the case of uniform heating, and with an increasing heat supply are higher. Empirical relationships are presented for evaluation of the influence of heat-supply nonuniformity upon the critical thermal fluxes. 3 figures, 3 tables. 5 bibliographic entries.

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USSR UDC 621.396.6-181.48

GORLOV, M. I., YEROKHIN, V. S., NEKRASOV, V. A., and CHERNYSHOV, V. V.

"Character of the Changes in the Noise Properties of DTL Type (Diode-Transformer Logical) Integrated Circuits Depending on Type of Testing"

Sb. tr. po poluprovodnikovym materialam, priboram i ikh primeneniyu (Collected Works on Semiconductor Materials, Instruments and Their Use), Voronezh, 1971, pp 182-188 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 V223)

Translation: The authors analyze the results of tests performed on four sets of microcircuits with approximately the same noise level values for each set. The microcircuits were subjected to various types of influences: effect of humidity, thermocycling, tests for cold and heat resistance, and, in addition, all microcircuits were subjected to testing for 500 hours with respect to operational reliability at +125° under switching conditions. Original article: five illustrations, one bibliographic entry. N.S.

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Acc. Nr.: AP0048493

Ref. Code: UR0009

JPRS49937

Geological Cross Section of Superdeep Hole in Ciscaucasia

(Abstract: "Geological Cross Section of Super deep Well in Ciscaucasia," by G. M. Aladatov, A. I. Dvakonov and S. I. Gorlov, All-Union Scientific Research Institute of Petroleum; Moscow, Geologii Nefti i Gaza, No 1, 1970, pp 55-57)

Deep drilling was begun in 1964 in Krasnoyarskiy Kray in the Medvedovskaya fold, situated in the northern part of the Timashevskaya formation, for detailed study of tectonic structure and determining the petroleum and gas deposits in Mesozoic deposits. Two boreholes were drilled there (position shown in Fig. 1, a geological cross section of the area). The first, passing through rocks of Cenozoic and Late Cretaceous age, in the interval 4,106-4,515 m encountered sedimentary and igneous-sedimentary formations (tuffs and tuff sandstones). The second hole was drilled to a depth of 6,320 m. It encountered a complex of deposits of Cenozoic, Cretaceous and Jurassic age and a stratum of rocks of volcanic origin tentatively assigned to the Upper Paleozoic-Lower Mesozoic. The depth reached by hole No. 2 is among the record depths reached in the USSR and is the greatest reached in Ciscaucasia. Figure 2 is a geological cross section of hole No. 2; this cross section is discussed in detail in the text. The work has shown that

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holes can be drilled as deep as 6,000 m in this region and that at such depths there are collectors favorable for saturation by petroleum and gas. The presence of a thick stratum of rocks of igneous types is evidence of intensive olcanic activity in the region. Periods of active volcanism occurred in western Ciscaucasia and on the northern slope of the Greater Caucases during the Middle Devonian, Permain, Lower Jurassic and Albain. The massive nature of these rocks of volcanic origin and the almost complete absebce of sedimentary formations in the series of rocks of volcanic origin makes it difficult to determine their age. The data collected from rock cores indicate that in the southern part of the Timashevskaya formation conditions exist for the formation of lithologic-stratigraphic deposits of petroleum and gas. For exploring these deposits it is necessary fo drill holes to the south of the Medvedovskaya area in the direction of the northern edge of the Western Kuban downwarp.

USSR

UDC 621.81.539.4

DEMIDOV, A. S., GORLOV, V. B. and MOROZOVA, L. P.

"An Investigation of Stresses on Models of a Tube Sheet Made of Optically Active Material"

Moscow, Tr. Mosk. aviats. in-ta (Transactions of the Moscow Aviation Institute), Vyp 245, 1972, pp 5-13 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4V1254 by V. I. Baulin)

Translation: Experiments on the determination of stress in models of the tube sheet of a shell-and-tube heat exchanger of the rigid type made of the optically active material ED6-M are considered. Hydrostatic loading was imitated on the model using a lead shot layer placed in asbestos paper. The axial loading towards the sides of the tube packet is simulated by weights suspended from cams, made of the same ED6-M material and glued to the holes of the tube sheet. Corresponding to the concrete scheme of loading of the tube sheet, certain weights, suspended through blocks, simulate the force action of tubes of the opposite sign.

The values of the hydrostatic loading and the axial forces from the tubes are determined by calculating the concrete heat-exchanger, introducing the corresponding coefficients of force and geometric simulation. Calculations of

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USSR

DEMIDOV, A. S., et al., Tr. Mosk. aviats. in-ta, Vyp 245, 1972, pp 5-13

tube sheet models with already known loading are conducted analogously. A comparison of the stresses obtained by calculated and experimental means is conducted. It is mentioned that the character of the calculated determination of stresses from bending moment as a whole corresponds to the experimental data; because of concentration the stresses near the apertures are maximal. The stresses near the apertures exceed by 15-30% the mean experimental stresses.

2/2

radiation medicine

SO: JPRS 53448
24 June 71

UDC 617-001.28-036.86(409.3)

BOOK REVIEW ON POSTRADIATION RECOVERY

6506231 (Radiation Medicine) 6506650

[Book Review by Yu. G. Grigor'yev, V. G. Gorlov and Yu. V. Farber; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 2, 1971, pp 80-90]

Bibliographic data: Akoyev, I. G., Problemy Postlucheveoge Vosstanovleniya (Problems in Postradiation Recovery), Atomizdat, Moscow, 1970, 368 pages, 1,325 copies printed.

GORLOV, V. G.

Although a considerable number of studies have been published on the subject, the investigation of the processes of recovery after radiation damage at the body level remains one of the most complex and inadequately studied fields of radiobiology. A quantitative study of recovery processes is of particular importance. A knowledge of the quantitative laws of decrease in radiation damage to the body is extremely necessary for the planning of flights by cosmonauts, particularly for a sound determination of the admissible irradiation doses and the thoroughly validated selection of justified risk doses. The selection of fractional dose rhythms in the radiological clinic is also based on the characteristics of decrease in residual radiation damage with time, that is, is based on a knowledge of recovery laws.

All this emphasizes the timeliness of the attempt undertaken by I. G. Akoyev to generalize the vast amount of his own experimental data and the data of other authors working in this field of radiobiology.

The author's investigations, set forth in detail in a number of chapters, include discussion of the following subjects:

determination of the dependence of the rate and completeness of recovery of animal tolerance to repeated irradiation;

study of recovery processes in different species and the approaches to extrapolation of experimental data to man;

USSR

UDC: 519.3:62-50

GORLOV, V. M.

"One Class of Pursuit Games"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, No 6, 1973, pp 1511-1526

Abstract: The author considers the problem of the pursuit of an object whose movements are determined by the system of differential equations

$$\frac{dz}{dt} = f_1(z,u) + f_2(z.v),$$

$$z(0) = z_0:$$

where $z = \{z^1, z^2, \ldots, z^n\}$; u,v are controlling functions; the choice of u is determined at any moment by the player P, the pursuer; while v is chosen by the player E, the pursued. It is assumed that $u \in U$, and $v \in V$, where U and V are specified closed and limited regions. P tries to end the game as quickly as possible; E tries to prolong it. The object of the paper is to reduce the solution of the game problem to the simplest high-speed problem.

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USSR UDC 621.314.61(088.8)

GORIOV, YU. I. /State Plant "Elektrik"/

"Three-Phase Rectifier"

USSR Author's Certificate No 265254, filed 14 February 1966, published 17 June 1970 (from RZh-Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B549P)

Translation: A 6-phase rectifier /vypryamitel'/ circuit is proposed with six rectifiers /ventil'/ and two 3-phase sections of the secondary winding of a power transformer. Both sections are connected into a star. The rectifiers are connected in pairs into three networks, while in each network they are connected opposite to one another. The junction of the anodes of these rectifiers is a common point. The three networks mentioned are connected into a triangle. The lead outs of the first section of the secondary winding of the transformer are connected to the apexes of the triangle and the lead outs of the second section of the secondary windings are connected to the junctions of the anodes of the rectifiers of each network. The load is connected between the null points of sections of the secondary windings. 1 illustra-
1/1 tions. A.S.

USSR UDC 539.4:624

SHAPIRO, G. A., SIMON, Yu. A., ASHKINADZE, N. G., GORLOVA, E. S., PARUSHKIN, A. K.

"Experimental Study of Earthquake Resistance of Residential Buildings of Sawn Limestone on Southern Shore of Crimean Using Vibration Machines"

Proyektir. i Str-vo Zdaniy v Seysmich. R-nakh. USSR i MoldSSR [Planning and Construction of Buildings in Earthquake Regions of UkSSR and MoldSSR -- Collection of Works], Kishinev, Timpul Press, 1972, pp 117-131, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V911).

Translation: Vibration tests and certain additional studies have shown that large-block construction of large (two-row) sections can cope successfully with dynamic loads, which, in combination with reinforced concrete walls in stairwells, assures earthquake resistance of the buildings tested with a double reserve for level eight loadings.

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1/2 013 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--EQUATIONS FOR CALCULATING THE EQUILIBRIUM OF UREA SYNTHESIZED FROM AMMONIA AND CARBON DIOXIDE -U-

AUTHOR-(02)-KUCHERYAVYY, V.I., GORLOVSKIY, D.M.

6

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(3), 355-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--UREA SYNTHESIS, AMMONIA, CARBON DIOXIDE, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1504 STEP NO--UR/0063/70/015/003/0355/0356

CIRC ACCESSION NO--AP0136505

UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0138505 PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EMPIRICAL EQUATIONS WERE DERIVED FOR THE SYNTHESIS OF UREA FROM CO SUB2 AND NH SUB3 IN TERMS OF MOLAR AMOUNTS OF REACTANTS PRESENT IN THE REACTOR. THEIR VALIDITY WAS CONFIRMED BY EXPTL. DATA ON THE EQUIL. OF THE SYSTEM. THE EQUATIONS ARE SUITABLE FOR STATIC CONDITIONS AS WELL AS FOR FLOW REACTORS IN WHICH NEARLY EQUIL. CONDITIONS ARE ATTAINED. FACILITY: FILIAL GIAP, DZERZHINSK, USSR.

UNCLASSIFIED

AA0040714 Gorlovskiy, D.M. UR 0482 1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

240702 UREA PRODUCTION from NH_3 & CO_2, using converted natural gas as CO_2 source, and as H_2 source for NH_3 synthesis, is intensified and energy losses reduced, by total or partial injection of the converted natural gas feed at 30 kg/cm^2 with ammonium carbonate solution and liquid ammonia at 600-1000 kg/cm^2 to absorb CO_2 from the feed. Part of the converted natural gas is compressed and introduced at the base of the urea synthesis tower, at a temp. higher than the temp. of synthesis, and assists concentration of the urea melt. 6.7.67. as 1171649/23-26, GORLOVSKII, D.M. et al. (12.8.69) Bul. 13/1.4.69. Class 12o, Int. Cl. C 07c.

19750354

AA0040714

AUTHORS: Gorlovskiy, D. M.; Kucheryavyy, V. I.; Lebedev, V. V.; Al'tshuler, L. N.; Levenkova, N. I.; Mel'nikov, B. P.; and Gumenyuk, V. P.

19750355

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201010008-7"

USSR

UDC 661.143:681.3

GORLUBEV, I. F., BERENSHTEYN, D. R., and BLYAKHMAN, E. A.

"Calculation of the Optimal Mixtures of Luminophors Using a Simplex Method"

Sb. nauch. tr. VNII lyuminoforov i osebo chist. veshchestv (Collection of Scientific Works from the All-Union Scientific Research Institute of Luminophors and Principles for Purifying These Compounds), Vyp 7, 1972, pp 33-39 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L169 by N. Sh.)

Translation: A method is given for a computer calculation of complex mixtures for luminescent lamps having an improved color index. An example is given of the composition of such a mixture of the luminescent compounds LTS-1, LG-3, $Sr_3(PO_4)_2$: Sn, L-25, LTS-2, L-42, L-35, L-14, L-3500, and L-6500. It was shown that using the computer significantly hastened the selection of the optimum mixture.

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GORMAKH, S. Ya.

SO:JPRS 54514
18 NOV 71

UDC: 614.2:342.57(477.81)

INVOLVEMENT OF THE COMMUNITY IN ROVENSKAYA OBLAST IN PUBLIC HEALTH CARE

[Article by S.Ya. Gormakh, Rovenskaya Oblast Hospital; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 10, 1971, submitted 5 March 1971, pp 29-34]

[Text] During the period of Polish bourgeois rule medical care was extremely inadequate for the population of Rovenskaya Oblast. In the five districts of Poland in the time of landowners, which correspond to the territory of today's Rovenskaya Oblast, as of 1 January 1939, there were only 16 hospital institutions with 533 beds (0.5 beds per 1,000 population) in operation, 169 physicians (1.5 per 10,000 population), and 313 intermediate medical workers (2.9 per 10,000 population).

In the Dubno district with a population of 226,618 people, presently occupied by Klyuchevskiy and Bubnovskiy rayons, there were only three small hospitals with 132 beds. There was no hospital in Dubnyy rayon center, Klynovo, only two general practitioners and one dentist. A similar situation was observed in Rovenskiy, Sarnenskiy, and other districts.

In 1970, the network of therapeutic and prophylactic institutions of Rovenskaya Oblast consisted of 15 central, eight regional, and 50 rural district hospitals, 32 rural medical outpatient offices, 701 feldsher-midwife centers, 31 health centers, 242 collective farm maternity homes, the Rovenskaya Oblast and municipal hospitals, 15 antituberculosis, two oncological, two dermatovenerological, a psychoneurological, and endocrinological dispensaries, and a number of other therapeutic institutions. There are 9,710 beds in the oblast's therapeutic and prophylactic institutions (9.3 per 1,000 population) which employ 1,913 physicians (14.5 per 10,000 population), and 6,515 intermediate medical personnel (62.2 per 10,000 population).

The achievements in public health care are the result of a long and arduous road travelled by Soviet health services in Rovenskaya Oblast in the years of Soviet power.

These achievements are inseparably linked with adoption in Rovenskaya Oblast of the principles of Soviet public health care; one of these principles is its [illegible] and use the help of the broad Soviet community in solving public health problems.

USSR UDC: 621.375.014

GORN, L. S., ZHURINA, L. S., KHAZANOV, B. I.

"DC Amplifiers for the Microampere and Nanoampere Range"

Moscow, Pribory i Tekhnika Eksperimenta, No 2, Mar/Apr 72, pp 105-107

Abstract: The article describes construction of DC amplifiers which use the 1UT221 integrated differential amplifier described by V. D. Kozlov (Pribory i Tekhnika Eksperimenta, 1971, No 1, p 144) as the input element. The proposed instruments can be used for measuring currents to 20 μA. Also described are DC amplifiers based on a combination of FET and discrete transistor for current measurements to 1 nA. Circuit diagrams are given for both types of DC amplifier. Two figures, bibliography of one title.

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USSR UDC: 539.1.07

GORN, L. S., KHAZANOV, B. I.

"Data Processing in Radiometric Equipment With Transmission of the Information Via Communications Channel"

Tr. Soyuzn. n.-i. in-ta priborostr. (Works of the Union Scientific Research Institute of Instrument Building), 1970, vyp. 12, pp 33-46 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 11, Nov 70, Abstract No 11.32.1470)

Translation: The paper discusses the simplest methods of processing the results of measurements before transmitting them over a communications channel. Devices are classified by method of construction, and a brief description is given of the most typical devices of each type. Three illustrations, bibliography of twenty-one titles.

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Acc. Nr: AP0048368 Abstracting Service: INTERNAT. AEROSPACE ABST. 3-70 Ref. Code: UR0293

9

A70-24315 # Study of the geoactive particles and photoelectrons by means of satellite 'Kosmos-261.' IV—Study of charged particles with a middle and high energy (Issledovanie geoaktivnykh korpuskul i fotoelektronov na sputnike 'Kosmos-261.' IV—Izmereniia zariazhennykh chastits srednikh i vysokikh energii). A. D. Soliunova, A. D. Verevkin, Iu. I. Gal'perin, L. S. Gorn, L. S. Zhurina, I. D. Ivanov, R. N. Isaeva, I. P. Karpinskii, R. A. Kovrazhkin, V. V. Temnyi, B. I. Khazanov, A. V. Shifrin, and F. K. Shuiskaia. *Kosmicheskie Issledovaniia*, vol. 8, Jan.-Feb. 1970, p. 126-135. 7 refs. In Russian.

Descriptions of the scintillation spectrometers for measuring the electrons with energy ranging from 20 to 150 keV and more, protons with energy ranging from 0.30 to 9 MeV. A lead-screened Geiger counter for measuring the protons with energy above 50 MeV and rigid electrons is also described. The latitude-dependent intensity distribution of the intrusive electrons is determined together with the pitch distribution of the electron intensity in the auroral zone, and differential electron spectra. Z.W.

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REEL/FRAME
19800076

12

GORN, L. S.

Acc. Nr.: AP0042567 Ref. Code: UR0293

JPRS 50162

Measurements of Intermediate- and High-Energy Particles

(Abstract: "Measurements of Charged Particles of Intermediate and High Energies," by A. D. Bolyunova, A. D. Verevkin, Yu. I. Gal'perin, L. S. Gorn, L. S. Zhurina, I. D. Ivanov, R. N. Isayeva, I. P. Karpinskiy, R. A. Kovrazhkin, V. V. Temnyy, B. I. Khazanov, A. V. Shifrin and F. K. Shuyskaya; Moscow, Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 126-135) [Note: This is part of a sectionalized article "Study of Geoactive Corpuscles and Photoelectrons on the Satellite 'Kosmos-261'," Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 104-136]

This article describes the RIE-205 scintillation spectrometer for electrons of intermediate energies, the RIP-802 scintillation spectrometer for protons and the RIG-III lead-shielded Geiger counter. The RIE-205 instrument measured electrons in the ranges 20-45, 45-85, 85-120 and 120-150 keV and the total intensity of electrons with an energy greater than 150 keV (geometry factor $2 \cdot 10^{-3} cm^2 \cdot sterad$). The RIP-802 instrument measured protons in the ranges 0.30-0.45, 0.45-0.70, 0.70-0.95 and 0.95-9 MeV with a geometry factor of $1.5 \cdot 10^{-2} \cdot sterad$. The RIG-111 instrument measured

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Reel/Frame
19760545

protons with E > 50 MeV and hard electrons. In the radiation belts and auroral zones the instruments measured the fluxes and energy spectra of electrons and protons, their distribution by pitch angles and spatial-temporal characteristics. It was possible to determine the latitude variation of the intensity of injected electrons, the pitch distribution of intensity for auroral zone electrons and the differential electron spectra. For example, the electron fluxes measured with the RIE-205 spectrometer can be assigned to the following groups: a) trapped electrons in the inner zone ($L \leq 2.5$) were registered for the most part in the region near the Brazilian anomaly; their flux for an energy E > 150 keV attained 10^8 particles/$cm^2 \cdot sec$. and was highly dependent on pitch angle; a pronounced maximum was observed for pitch angles 90°; b) trapped electrons in the outer zone $2.5 \leq L \leq 7$, also with a maximum intensity for pitch angles of 90°; in many cases quasitrapped particles were registered in the region of invariant coordinates $h_{min} \leq 100$ km with intensities up to $2 \cdot 10^6$ particles/$cm^2 \cdot sec \cdot sterad$; c) sporadic hard electrons injected into the atmosphere in the middle latitudes; in these cases the mean energy was usually $\sim$100 keV and the particle flux attained 10^5 particles/$cm^2 \cdot sec$; d) electrons of intermediate and high energies injected into the atmosphere in the high latitudes; they are frequently observed near the auroral zone.

GORN, R. K.

JRPS 60634
27 November 1972

NUMERICAL STUDY OF THE FLOW OF A LIQUID-METAL IN MAGNETODYNAMIC PUMPS

[Abstract of a Paper by R. V. Birikh, V. A. Briskman, G. I. Burde, R. K. Gorn, V. P. Polishchuk, V. I. Yakushin Given at a Magnetohydrodynamic Conference, pp 121-122]

In order to determine the optimal parameters of the structural design of a magnetohydrodynamic pump, it is necessary to have a concept of the nature of movement of the liquid-metal in the zone of effect of the electromagnetic forces. This movement is described by the system of equations of magnetic hydrodynamics. The solution of this system for regions of complex configuration even by numerical methods presents significant difficulties. However, in a number of cases of interest for practical applications, it is possible to introduce some simplifying assumptions.

If the distributions of the magnetic and electric fields are caused only by external sources and do not depend on the movement of the liquid (the inductionless approximation), then the problem can be reduced to the solution of the equations of ordinary hydrodynamics in the given nonuniform force field.

In this approximation a study has been made of the two-dimensional movement of a viscous incompressible liquid in a cross core with a linear decrease in magnitude of the force with respect to both coordinates. The finite-difference equations written for the current and vorticity functions were solved by the iteration method with a successive lower relaxation on a computer.

The nonuniform force distribution in the lateral channel (pocket) leads to the occurrence of turbulence in it. Depending on the force distribution in the core and also the parameters characterizing its configuration, the turbulence in the pocket will to a greater or lesser degree affect the movement of the liquid in the central channel, that is, the pump parameters.

A study was made of the dependence of these parameters (the magnitude of the head Δp and the drag ζ) on the flow rate of the liquid through the transverse cross section of the central channel (the Reynolds number Re) and the force distribution in the core.

GORN, R.K.

JPRS 60631
27 November 1973

NONUNIFORMITY OF THE VELOCITY AND PRESSURE FIELDS IN A MAGNETODYNAMIC PUMP

[Abstract of a Paper by R. K. Gorn, V. P. Poltinchik, V. L. Shcherbinin, V. S. Yakovlev Given at a Magnetohydrodynamic Conference, pp 115-119]

In the papers devoted to the investigation of magnetodynamic pumps [1], the complexity of the flow structure of a liquid-metal in the core has been noted, and a proposition has been stated regarding the presence of turbulence there. In order to discover the nature of the flow in the core and the channels adjacent to it, experimental studies were made on models with liquid gallium and a transparent electrolite (30% H_2SO_4), and a numerical calculation was made of the velocity and pressure fields based on the Navier-Stokes equation with the given distribution of the electromagnetic forces. The procedure used in the study in the gallium loop is described in [2]. The velocities in the electrolite were measured optically by photographing the visualized flow. A numerical study was made of the equations of laminar flow of a viscous liquid [3].

Introducing the current function ψ and the eddy function Ω, we obtain the system of differential equations

$$\frac{\partial\psi}{\partial x}\frac{\partial\Omega}{\partial y}-\frac{\partial\psi}{\partial y}\frac{\partial\Omega}{\partial x}=\frac{1}{Re}\Delta\Omega=-\frac{\partial^2 u}{\partial y^2}, \qquad (1)$$

where

$$\Delta\psi=\Omega, \quad u=\frac{\partial\psi}{\partial y}.$$

$R_e = U_0 a/\nu$; a is the half-width of the transport channel; U_0 is the maximum velocity at the input to the core; F_0 is the scale of the electromagnetic force; $\partial f/\partial y$ is the variation of the electromagnetic force in the lateral channel. (2)

The numerical calculations were performed for the core with different ratios of the dimensions l/a and H, Re. In Figure 1, a, the calculated pictures of the movement of the liquid in a crisscross core ($Re = 600$, $H = 3 \cdot 10^{-5}$) and the

USSR UDC: 532.5:621.313.3:538.4

GORN, R. K., POLISHCHUK, V. P., SHEKHOVTSOV, V. I., and YAKOVLEV, V. S.

"Investigating Velocity and Pressure Fields in a Magnitodynamic Pump"

Riga, Magnitnaya gidrodinamika, No 1, 1973, pp 105-110

Abstract: This article describes experiments to investigate magnetohydrodynamic processes in the channel of a magnetodynamic pump. The experiments were done with liquid gallium and a transparent electrolyte consisting of 30% H_2SO_4. From the distribution of electromagnetic forces thus obtained, the numerical computations of the velocity fields and the pressures were made using the Nav'ye-Stokes equations. The method of the investigations is described in earlier papers by the same authors named above (Materialy k V Tallinskomu soveshchaniyu po elektromagnitnym raskhodomeram -- Materials for the Fifth Tallin Conference on Electromagnetic Flowmeters -- Tallin, 3, 1971, 46) and a diagram of the cruciform active zone of the pump used in the tests is shown. The theory of the experimental situation is developed, and theoretical results are compared with experimental to show that the change in

USSR UDC: 532.5:621.313.3:538.4

GORN, R. K., et al, Magnitnaya gidrodnamika, No 1, 1973, pp 105-110

pressure in the active zone and in the side channel of the pump is the same in both.

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CSO: 1861-W

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USSR UDC 621.313.333:538.4

SHEKHOVTSOV, V. I., POLISHCHUK, V. P., GORN, R. K., and YAKOVLEV, V. S.

"Field of a Magnetodynamic Pump Stator"

Riga, Magnitnaya Gidrodinamika, No 4, Oct-Dec 72, pp 62-70

Abstract: The problem is presented on determining the electromagnetic field of a stator in the active zone of a magnetodunamic pump, approximated by a thin cross-shaped plate located between the ferromagnetic surfaces and consisting of individual sections with varying equivalent parameters. The general boundary conditions were formulated considering pump design and arrangement of stator windings. The Helmholtz equation was solved for two components of the complex current density in the "cross" with infinitely long rays by the Fourier-Lamb method using superposition of the fields in the central region of the "cross." Simplified solutions were obtained, considering the relationships in actual pumps for the pole and an infinitely wide electromagnet. Uniform relationships, found in the latter, enter into the general solutions for the "cross" and poles, the remaining members of which take into account the longitudinal and lateral fringe effects. A comparison of the experiment and calculation for a solid brass coil showed the

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SHEKHOVTSOV, V. I., et al., Magnitnaya Gidrodinamika, No 4, Oct-Dec 72, pp 62-70

acceptability of the field calculation in the pump channel for the experimentally found coefficient of current spread and equations for the pole. 4 figures, 7 bibliographic references.

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USSR UDC 621.313.39:538.4

BURDE, G. I., GORN, R. K., YAKUSHIN, V. I.

"Movement of Liquid in MHD-pump with Cross-Shaped Active Zone"

Riga, Magnitnaya Gidrodinamika, No 3, Jul-Sep 72, pp 99-104.

Abstract: The method of finite differences is used to study the motion of a viscous, incompressible fluid in the cross-shaped active zone of an MHD pump. It is assumed that the distribution of the magnetic and electrical fields results only from external sources and is independent of the motion of the liquid (induction-free approximation). In this case, the problem is reduced to solution of equations of ordinary hydrodynamics in a fixed, heterogeneous force field. The finite-difference equations written for the current function and velocity vortex are solved by an iteration method with sequential lower relaxation. The dependence of head and hydraulic resistance factor on fluid flow rate and the distribution of forces in the active zone are studied. A picture of the flow lines with various values of force in the active zone is presented, as well as graphs of the values of head and hydraulic resistance as functions of Reynolds number.

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UDC 616-001.34-036.865

USSR

GORNIK, V. M., Central Institute of Working Capacity Examination and Organization of Labor for Invalids, Moscow

"Certification of Working Capacity in the Presence of Vibration Disease Caused by Localized Vibration"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1973, pp 15-18

Abstract: Clinical studies were conducted on 50 vibration disease patients to determine the validity of conclusions made previously by a medical disability examination commission on the working capacity of these patients. Conclusions were reversed for 22 of the patients. The greatest difference was found in assessment of group III disability: Of 14 individuals determined to be fully capable of work by the commission, 11 were placed into group III disability on the basis of the clinical tests. At the same time limited working ability was confirmed for only 23 of 29 individuals placed in this category by the commission. Such differences stemmed primarily from the commission's disregard for alternative forms of work, and lack of adequate clinical data. It is concluded that the commission must employ additional paraclinical tests in determining working capacity and take fuller consideration of social factors related to the type of work to which the individual is assigned.

AT0 032088 NUCLEAR SCI. ABST. 2/70 UR0000

5364 (SLAC-Trans-104) HIGH-FREQUENCY POWER SUPPLY OF THE VEPP-2 STORAGE RING. Gorniker, E. I.; Karliner, M. M.; Petrov, V. M.; Petukhov, V. Y.; Shekhtman, L. A. (Akademiya Nauk SSSR, Novosibirsk. Institut Yadernoi Fiziki). Translated by T. Watt for Stanford Linear Accelerator Center, Calif., from Russian Preprint No. 285. 12p. Dep. CFSTI.

The equipment described consists of two tuned power amplifiers, a master oscillator, and a control system. One of the amplifiers, operating at a wavelength of $\lambda_1 = 4$ m, has a rated power of 150 kW, so that it can be used to develop a voltage of up to 300 kV across the accelerating gap, which is necessary to ensure a short bunch length. The other amplifier has a rated power of 20 kW and operates at a wavelength $\lambda_2 = 12$ m. It is used to take the stored particles from three separatrices onto one. The common master oscillator and the control system ensure correct phasing of the voltages at the two frequencies. The control units stabilize the operation of the system, automate the operation of recapture, and contain feedback circuits which suppress electromechanical oscillations of the resonator. (auth)

1/1 19700274 19

USSR UDC:620.171

GORNOSTAY, V. I., BAZHENOV, V. G., TONYUK, N. I., Zhitomir

"Test Stand for Rotating Turbine Elements"

Kiev, Problemy Prochnosti, No 10, Oct 73, pp 100-103

Abstract: A universal test stand for testing of the stress state of plastic deformation and rupture of rotating structures spinning at up to 80,000 rpm is described. The stand consists of a main portion (direct current generator and control panel), in a separate room, and the actual spinning portion. The stand can be used for long-term and short-term studies at constant or variable (including cyclical) rotating speeds under normal, high and low temperatures, in air, in a vacuum and in corrosive media. Structures up to 1400 mm in diameter and 1200 mm long at the axis can be studied. The chamber is made of reinforced concrete in the form of an arch coupled to a concrete foundation. The arch is 1000 mm thick. The inside of the chamber is lined with wooden beams and armored sheets covered with rubber plates to reduce the impact of parts following ruptures.

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USSR

UDC 582.288.43(571.6)

GORNOSTAY, V. I., Chair of Botany, Primorskiy Agricultural Institute, Ussuriysk

"Far-Eastern Species of Helminthosporium Species on Grains"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 1, 1971, pp 76-79

Abstract: The occurrence of Helminthosporium fungi on grains in the Far East was studied. The fungi were identified by single-spore cultures grown on oat agar. Eu-Helminthosporium victoriae Mech. and Murphy, a new species for the USSR, was found on various grains. Eu-Helminthosporium leersi was found on leaves of Pollinia imberbis and Arthraxon langsdorffii, the latter being a new host for this species of fungus. A fungus identified as Eu-Helminthosporium setariae Sawada was isolated from leaves of Digitaria linearis, a new host for this species. Eu-Helminthosporium stipae occurred on Agrostis alba and Stipa effusa and Eu-Helminthosproium cynodontis Marignoni on Muehlenbergia japonica. A fungus isolated from Japanese sorghum was identified as Eu-Helminthosporium cookei Sacc.

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1/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--A METHOD FOR REDUCING THE BLIND ZONE OF WEATHER RADAR -U-

AUTHOR-(04)-VAKSENBURG, S.I., GURNOSTAYEV, N.V., GUREVICH, V.I., SHEVELA, G.F.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, TRUDY TSENTRALNOGO VSESOYUZNOGO SOVESHCHANIYA PO RADIOLOKATSIONNOY METEOROLOGII, YEAR NOT STATED, PP 230-237

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, NAVIGATION

TOPIC TAGS--METEOROLOGIC RADAR, ATMOSPHERIC CLOUD/(U)MRL1 METEOROLOGIC RADAR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1021 STEP NO--UR/0000/70/000/000/0230/0237

CIRC ACCESSION NO--AT0110716
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AT0110716

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME OF THE PROBLEMS INVOLVED IN DETERMINING THE LOWER CLOUD BOUNDARY WITH THE MRL-1 TWO RANGE METEOROLOGICAL RADAR DURING ITS OPERATION IN A VERTICAL SOUNDING REGIME ARE EXAMINED. LIMITATIONS ARISE WHICH ARE ASSOCIATED WITH THE MINIMUM EFFECTIVE RANGE OF THIS RADAR WHICH IS DETERMINED NOT ONLY BY THE DURATION OF THE SOUNDING PULSE, BUT TO A CONSIDERABLE DEGREE BY THE EFFECT OF THE FAR SIDE LOBES OF THE ANTENNA. IN DETERMINING THE LOWER CLOUD BOUNDARY IT IS DESIRABLE TO ELIMINATE THE EFFECT OF THE SIDE LOBES WHILE RETAINING NOMAL RESPONSE IN THE DIRECTION OF THE MAIN LOBE IN THE ANTENNA DIRECTIONAL DIAGRAM. THE MRL SIDE LOBES APPARENTLY CAN BE SUPPRESSED USING AN APPARATUS WHOSE BLOCK DIAGRAM IS SHOWN AND DISCUSSED IN THIS ARTICLE. SUPPRESSION WILL OCCUR IF THE SIGNAL RECEIVED IN THE SUPPRESSION CHANNEL EXCEEDS THE SIGNAL RECEIVED IN THE MAIN CHANNEL IN THE DIRECTION OF THE SIDE LOBES. THE RECEIVER, CONSISTING OF A MAIN CHANNEL AND A SUPPRESSION CHANNEL, MAKES IT POSSIBLE TO SUPPRESS THE SIDE LOBES BY SUBTRACTING FROM THE VIDEOFREQUENCY THE SIGNALS RECEIVED BY THE SUPPRESSION ANTENNA AND THE MAIN ANTENNA FROM THE SIDE LOBES. INITIAL TESTS HAVE SHOWN THAT IT IS POSSIBLE TO COMPENSATE REFLECTIONS FROM LOCAL OBJECTS AND TO REDUCE THE BLIND ZONE, BUT FURTHER TESTS WILL BE MADE IN THE SUMMER OF 1967.

UNCLASSIFIED

USSR

UDC 621.383.8

BUTSLOV, M. M., Doctor of Sciences, GORNOSTAYEV, V. A., KARAPETYAN, B. O., MARKOV, A. A., Doctor of Sciences, SMOLKIN, G. Ye., Doctor of Sciences, and SOFIYEV, G. N., Candidate of Sciences

"Electron-Optical Pulse Apparatus for Astronomical Investigations"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 10, Oct 72, pp 54-56

Abstract: A study is made of the problems to develop an installation for the investigation of astronomical objects with transitional radiation on the basis of pulsed cascade image converter tubes. This installation must be applicable for the solution of a large circle of astronomical problems requiring short-term exposures. The demands made to the principal parameters of a similar installation are indicated. The installation and the generator of frame scannings (GFS) and shutter pulses are described by reference to the flow chart and the functional diagram. The results of testing the GFS by making use of a PIM-3 type converter are presented in form of frequency-contrast characteristics. The latter give an idea of the contrast transfer in the whole range of frequencies. Four illustr., six biblio. refs.

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USSR

UDC: 681.325.5

GAVRILOV, V. S., GORNOSTAYEV, V. N., ZAPOL'SKIY, B. A., SEROV, B. V.,
Karelian Scientific Research Institute of the Forestry Industry

"A Parallel Ring Register"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, Jul 72, Author's Certificate No 343305, Division G, filed 10 Mar 70, published 22 Jun 72, p 175

Translation: This Author's Certificate introduces a parallel ring register which contains n ring registers and AND and OR circuits. As a distinguishing feature of the patent, provision is made for changing the numbers in the register without loss of time on carry operations and the amount of equipment is reduced by introducing one single-place adder for every two inputs in each of the n registers. The carry output of each adder is connected to one of the inputs of the adder located in the next higher register and shifted relative to the adder of the lower register by one digit in the direction of motion of information in the register, and the input of the adder of the lower register is connected to the output of the AND circuit. One input of the AND circuit is connected to the input of the device, and the other is connected through the OR circuit to the outputs of one of the digital places of each of the n registers.
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1/2 009 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--MAGNETOTELLURIC SOUNDINGS IN THE SOUTH OF THE SIBERIAN PLATFORM AND BAIKAL RIFT ZONE -U-
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COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 4, PP 111-118

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGNETOTELLURIC SOUNDING, GEOELECTRIC FIELD, EARTH CRUST, UPPER MANTLE, MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0052 STEP NO--UR/0210/70/000/004/0111/0118

CIRC ACCESSION NO--AP0114448

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0114448

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF DEEP MAGNETOTELLURIC SOUNDINGS (MTS) HAVE BEEN MADE DURING 1961-1968 YEARS IN PRIBAIKALIA ARE CONSIDERED IN THE PAPER. THREE AREAS (BLOCKS) ARE SUPPOSED IN THE TERRITORY OF PRIBAIKALIA, BASED UPON REPRESENTATIVE DATA: PLATFORM ONE, RIFT AND TRANSITIONAL WITH DIFFERENT GEOELECTRIC MODEL OF THE EARTH'S CRUST SECTION AND UPPER MANTLE. THE CONVENTIONAL BOUNDARIES OF THESE AREAS ARE ORIENTED IN PARALLEL TO BAIKALIAN RIFT ZONE. DIFFERENT THERMAL REGIME IN LISTED AREAS IS SUGGESTED AS A MAIN REASON OF CRUSTAL AND MANTLE GEOELECTRIC MODEL CHANGE FROM PLATFORM BLOCK TO RIFT ONE. FACILITY: VOSTOCHNYY GEOFIZICHESKIY TREST VOSTSIBNIIGGIMS, IRKUTSK.

UNCLASSIFIED

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USSR UDC 911.3:616.9:576.895.771(47+57)

SHIPITSINA, N. K., ANUFRIYEVA, V. N., BANDIN, A. I., VINOGRADSKAYA, O. N., GORNOSTAYEVA, R. M., KUPRIYANOVA, Y. S., MARKOVICH, N. Ya., RASNITSYN, S. P., and TIMOFEYEVA, L. V.

"Study of the Biology of Blood-Sucking Diptera as Basis for Combating Vectors of Infection and Blood-Sucking Insects in the Soviet Union"

V sb. Materialy Nauchn. konferentsii posvyashch. 50-letiyu In-ta Med. parazitol. i tropich. Med. 1970 (Proceedings of the Scientific Conference Devoted to the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 48-49 (from RZh-Meditsinskaya Geografiya, No 2, Feb 71, Abstract No 2.36.48)

[No abstract]

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USSR

UDC 595.771-152(571.51)

GORNOSTAYEVA, V. M. and GACHEGOVA, T. A., Entomology Department, Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR

"Discovery of the Breeding Places of the Biting Midge Lasiohelea sibirica Bujanova"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 621-622

Abstract: Lasiohelea sibirica Bujanova from the environs of Krasnoyarsk was described in 1962 by Bujanova as a new species of the world fauna. It is now found in Permskaya Oblast, along the upper Lena River, and in the Ukraine. In 1970 the authors found two L. sibirica larvae and six eggs near the construction site of the Sayano-Shushenskaya Hydroelectric Power Plant. Five eggs were found among leaves and sandy soil in cracks between stones. The sixth egg was found in leaves under a bush in deep shade. The samples containing the eggs and larvae were taken alongside a stream that empties into the Yenisei.

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USSR

UDC 669.189:621.746.75

KHLYNOV, V. V., GORNOVOY, V. A., and STRATONOVICH, V. N., Sverdlovsk

"Some Factors Affecting the Enlargement and Removal of Nonmetallic Inclusions From Steel"

Moscow, Izvestiya Akademii Nauk SSSR -- Metally, No 5, 1970, pp 47-50

Abstract: This article contains an analysis of factors affecting the removal of nonmetallic inclusions from steel. In the experiment silicon or aluminum was introduced into previously oxidized technical Armco-iron [O] = 0.175%. A high-speed movie camera was used to record the kinetcs of transition of the sample (coated with deoxidation products) of metal in the gas phase (helium). The hole formed on the surface of the metal was round if the curvature of the plate of MgO or Al_2O_3 did not change from point to point. As its diameter 2r varied with time t, the rate of loss of metal from the surface of the sample u(dr/dt) was found. The experimental results are presented in the form of a graph showing that in the oxygen concentration range of 0.175-0.12% the value of u increases with deoxidation by Al several times faster than by silicon. The mechanism of this phenomenon is discussed in some detail. It is noted that the dependence of stability on the properties of the phase coating the surface of the sample and the metal indicates different capacity of the thin metal

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KHLYNOV, V. V., et al, Izvestiya Akademii Nauk SSSR -- Metally, No 5, 1970, pp 47-50

layer to leak out of the gap between the two oxide surfaces. Various aspects of loss of stability are discussed. It is noted that the experimental results permit explanation of the fact that alumina inclusions are better removed from the metal than silicate inclusions. The stability of the thin interstitial layers of metal on approach of liquid particles to the slag layer or to each other leads to the fact that not every encounter is effective. Therefore, merging of the particles of liquid silicates or their absorption by slag is realized in accordance with the laws of slow coagulation. Joining of solid particles is not in practice retarded by the liquid metal interstitial layer; however, it is a very alow process. On the contrary, agglomeration of liquid particles with solid particles and absorption of the latter by slag take place quite rapidly.

It was found that the thin interstitial layers of steel between the oxide film on its surface and a liquid nonmetallic particle are stable. The stability time increases on conversion from ferrous inclusions to silicate inclusions. No stability is detected at the interface with solid alumina inclusions. The data clarify the better removal of inclusions when steel is killed with increased quantities of aluminum.

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UDC: 62.52(047.1)

USSR

GENIS, A. A., GORNSHTEYN, I. L., PUGACH, A. B.

"Glow-Discharge Devices"

Pribory Dleyushchego Razryada [English Version Above], Second Edition, Revised and Supplemented, Kiev, Tekhnika Press, 1970, 404 pages (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, 1970, Abstract No 7A11K, by V. M.).

Translation: This book analyzes elements of the theory, principal characteristics, and parameters of glow-discharge devices (diodes, triodes, tetrodes, multi-electrode tubes) and presents elementary circuits, functional units and blocks, and methods of design and selection of the main circuit elements used in various areas of industrial electronics. The book has been revised and supplemented since the first edition as concerns the characteristics, parameters, and properties of new tube types, new circuits, and their applications. The material on the dispersion, drift, and reliability of glow-discharge devices has been expanded and supplemented. The material was processed using statistical data from the leading organizations with experience in the operation of apparatus using cold-cathode tubes. 226 illustrations; 15 tables; 154 biblio. refs.

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Acc. Nr.: AM0045255 Ref. Code: UR0000

Genis, A. A.; Gornshteyn, I. L.; Pugach, A. B.

Glow-Discharge Instruments (Pribory tleyushchego razryada) 2nd Ed. Kiev, Tekhnika, 1970, 403 pp (SL:1857)

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The book deals with elements of the theory, basic characteristics and parameters of glow-discharge instruments (diodes, triodes, tetrodes, multielectrode tubes)...

The book was written for engineers and technicians specializing in automation, remote control, computing techniques and communication; it can be useful also to college and technicum students...

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UDC 53.087.92+531.7.087.92

MAR'YANOVSKIY, Ya. M., PODGOYETSKIY, M. L., GORNYY, A. V.

"Sensors Using Fluidics Sound Radiators"

Tr. Vses. N.-i. i Konstrukt. In-t "Tsvetmetavtomatika" [Works of All-Union Scientific Research and Design Institute "Tsvetmetavtomatika"], 1971, No 1, pp 138-146, (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A159 by N. S.).

Translation: A study is made of the general properties of fluidics radiators capable of converting a continuous stream of gas or liquid into high-frequency acoustic field energy. Formulas are produced for calculation of the design characteristics of fluidics sound radiators of the stream-wedge and stream-wedge-resonator types depending on properties of the medium forming the stream, its velocity, and the geometric parameters of the radiator-screen system. Satisfactory coincidence between results of calculation and experimental results is demonstrated. 4 Figures; 13 Biblio. Refs.

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USSR UDC 621.373:530.145.6

GORNYY, N. B.

"Multiphoton Excitation of Plasmons in a Solid State Accompanied by Emission of High-Energy Protons"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi, Vyp. 4 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 4), 1970, pp 127-131 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D158)

Translation: This article contains an investigation of several experiments in which the complex radiation spectrum and photoeffects occurring under the effect of intense laser light on the surface of metals in a vacuum were investigated. Some peaks of the complex radiation spectrum obtained for tungsten and tantalum show that as a result of multiphoton absorption of laser light in the indicated metals, plasma oscillations of electron-plasmons are excited. Subsequent decay of the plasmons is accompanied by emission of photons with an energy (equal to the plasmon energy) many times (~40) greater than the energy of the photons of the laser light.

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